

Yuting Chen

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Education

Wuhan University, Wuhan, China

Spet. 2022-Present

College of Life Science

Major: Biological Science

GPA: 3.81/4.00(11/159)

TOEFL: 99 (out of 120)

Research Experiences

Exploring Regulatory Role of Crp Protein in Benzo[a]pyrene(BaP) Degradation by *Pseudomonas*

Lab of Prof. Zhixiong Xie -Wuhan University

Sept 2023-Jun 2024

- For detecting the function of Crp protein, performed gene knockout of *crp* to obtain a deficient strain, and subsequently, a revertant strain was constructed by homologous recombination method.
- For investigating the phenotypic changes caused by Crp protein, did primary screening for BaP degradation ability as well as swimming motility in the deficient, wild-type, and revertant strains.
- For excluding variable effects and isolating Crp protein, performed molecular cloning and optimized expression condition for Crp protein.
- For detecting the interaction between Crp protein, cAMP, and the *rhd* promoter associated with BaP degradation, performed EMSA test.
- For measuring the expression levels of the *rhd* in the deficient, wild-type, and revertant strains., performed a qPCR assay.

Design and Construction of an Adhesion Aystem for an Engineered Intestinal Probiotic

Lab of Prof. Zhixiong Xie -Wuhan University

Nov 2023-Oct 2024

- For addressing the issue of patients repeatedly taking nutritional peptides, participated in designing an engineered intestinal probiotic, including peptide secretion, colonization, and safety components.
- For ensuring the long-term colonization of the engineered probiotic, involved in the development of an adhesion system and designed the experimental methodology.
- For evaluating the expression levels of the target genes and corresponding proteins, performed molecular cloning for optimized expressions, followed by WB and an optimized protocol for detecting.
- For determining the phenotypic characteristics of the surface-display protein, performed immuno-fluorescence detection.
- For validating the feasibility of the system, constructed the adhesion system in *Escherichia coli* and verified using WB.

Directed Evolution of the EL222 promoter for a DNA Cascade Recording System

Lab of Prof. Zhixiong Xie -Wuhan University

Nov 2022-Nov 2023

- For realizing a biosensor for long-term and repeated monitoring, participated in the design of a DNA cascade system capable of recording level information using CRISPR.
- For facilitating rapid testing and control, involved in designing the EL222 blue light-controlled system,

which was later constructed in *E.coli*.

- For reducing gene leakage from the EL222 promoter, performed directed evolution of the EL222 binding site using error-prone PCR and explored the efficiency of different binding sequences.

Honors & Awards

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| • Gold Award for iGEM 2024, 2023 competition | Oct.2023, 2024 |
| • Best Foundational Advance Project Nomination and other 3 nominations (Best result for Wuhan University) | Nov. 2023 |
| • Merit student (for top 10% of students) | Sept. 2024 |
| • Second class of Study Scholarship (for top 10% of students) | Sept. 2023, 2024 |
| • Excellent Student (for top 10-23% of students) | Sept. 2023 |

Skills

Experimental skills:

- Proficient in conducting molecular biology experiments and certain immunological assays, such as Western blotting (WB), molecular cloning, immunofluorescence, etc.
- Cell culture techniques, such as subculturing, transfection, etc., as well as familiarization with P2 laboratory safety and operational protocols.
- Animal dissection techniques, such as euthanizing mice, organ sampling, etc.

Other skills:

- Python programming language, Photoshop, HTML, CSS, etc.